



SCOPE OF ACCREDITATION TO ISO/IEC 17034:2016

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REFERENCE MATERIAL PRODUCER

Valid To: September 30, 2022

Certificate Number: 1539.03

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this Reference Material Producer for the production of certified reference materials of the following categories:

Certified Reference Material	Class or Type of Reference Materials/Artifact or Matrix	Concentration Range <sup>2</sup> (after dilution, if applicable)	Relative Uncertainty <sup>1</sup> (Expanded)	Measurement Technique(s)
Environmental Reference Materials  Waters  Potable Water Routine Analytes  Fresh Water Routine Analytes  Industrial Waste Water Routine Analytes	Single and Multi-component microorganisms in lyophilized pellets and in solution.  <b>Microbiology:</b>  Total Coliforms Fecal Coliforms E.Coli  Enterococci Fecal Streptococci  Heterotrophic Plate Count	Presence/Absence, (20 – 2400) CFU/100 mL (20 – 2400) MPN/100 mL  Presence/Absence, (20 – 1000) CFU/100 mL (20 – 1000) MPN/100 mL  (5 – 500) CFU/mL (5 – 500) MPN/mL	(2 to 150) %	MPN Membrane Filtration Pour Plate Presence/Absence

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Environmental Reference Materials  Waters  Potable Water Routine Analytes Trace Elements Organic Pollutants Other Analytes  Industrial Waste Water Routine Analytes Trace Elements Organic Pollutants Other Analytes	Single and Multi-component organic and inorganic material in solution:  <b>Inorganic Chemistry</b> Minerals Hardness Solids Anions/Cations Nutrients Oil & Grease (HEM/SGT-HEM) Demand Trace Metals  <b>Physical Properties / pH</b> Color Turbidity Corrosivity UV254 Conductivity pH Settleable Solids	0.01 µg/L – 10 000 mg/L                 (10 – 500) PC, (0.5 – 4000) NTU (-4 – +4) SI (0.05 – 0.7) cm <sup>-1</sup> (10 – 10,000) umhos/cm (2 – 12) S.U. (2 – 100) ml/L	(0.1 – 16) %                     (0.2 – 10) %	Titration IC ICP/OES ICP/MS CVAA Spectrophotometry Conductivity Nephelometry Gravimetric Volumetric Ion Selective Electrode
Environmental Reference Materials  Waters Potable Water Routine Analytes Trace Elements  Reference Materials for Radioactivity	Single and Multi-component radionuclide material in solution:  <b>Radiochemistry</b> Gross Alpha/Beta Alpha Emitters Beta Emitters Gamma Emitters	(1 – 50,000) pCi/L	(0.5 – 5) %	Alpha/Beta Liquid-Scintillation Gamma-Spectrometry Alpha-Spectrometry ICP/OES ICP/MS

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<p>Environmental Reference Materials</p> <p>Soils and Sludges</p> <p>Trace Elements</p> <p>Mineral Content</p> <p>Trace Organics</p> <p>TCLP Leachate</p> <p>Organic Reference Materials</p> <p>Petroleum Products</p> <p>Transformer Oils</p> <p>PCBs</p>	<p>Single and Multi-component organic and inorganic material on soil/sludge/oil and in solution.</p> <p><b>Inorganic Chemistry</b></p> <p>Metals</p> <p>Anions</p> <p>Nutrients</p> <p>Cyanide</p> <p><b>Physical Properties / pH</b></p> <p>Corrosivity (pH)</p> <p>Ignitability</p> <p><b>Organic Chemistry</b></p> <p>Volatile Organic Compounds (VOCs)</p> <p>Nitroaromatics/Nitramines</p> <p>Polynuclear Aromatic Hydrocarbons (PAHs)</p> <p>Semi-Volatile Organic Compounds (SVOC)</p> <p>Per-and Polyfluoroalkyl Substances (PFAS)</p> <p>Glycols</p> <p>Organochlorine Pesticides (OCPs)</p> <p>Carbamate Pesticides</p> <p>Organophosphorus Pesticides (OPPs)</p> <p>Chlorinated Acid Herbicides</p> <p>Polychlorinated Biphenyls (PCBs) - Aroclors</p> <p><b>Petroleum Hydrocarbons</b> (TPH/DRO/GRO/VPH/EPH/ORO)</p> <p>Oil &amp; Grease</p> <p><b>TCLP</b></p> <p>Metals</p> <p>Volatiles Organic Compounds (VOCs)</p> <p>Semi-Volatile Organic Compounds (SVOC)</p> <p>Organochlorine Pesticides (OCPs)</p>	<p>(0.1 – 500,000) mg/kg</p> <p>(2 – 12) S.U. (100 – 200) °F</p> <p>1.0 µg/kg – 10,000 mg/kg</p> <p>(0.1 – 10,000) mg/kg</p> <p>(0.01 – 1000) mg/L</p>	<p>(0.5 – 20) %</p> <p>(0.2 – 30) %</p> <p>(0.4 – 30) %</p> <p>(0.5 – 30) %</p> <p>(0.5 – 25) %</p>	<p>Titration</p> <p>IC</p> <p>ICP/OES</p> <p>ICP/MS</p> <p>CVAA</p> <p>Spectrophotometry</p> <p>Colorimetric</p> <p>Conductivity</p> <p>Gravimetric</p> <p>Ion Selective</p> <p>Electrode</p> <p>Closed-Cup</p> <p>LC/UV</p> <p>LC/FLUOR</p> <p>LC/MS</p> <p>LC/MS/MS</p> <p>GC/FID</p> <p>GC/MS</p> <p>GC/ECD</p> <p>GC/NPD</p>



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Environmental Reference Materials	Single and Multi-component organic and inorganic material in solution:			Titration IC ICP/OES ICP/MS CVAA Spectrophotometry Conductivity Nephelometry Gravimetric Ion Selective Electrode
Waters	<b>Miscellaneous Chemistry</b> Cyanide Silica Surfactants Total Organic Halides Acidity Organic Carbon Chlorine	1.0 µg/L – 10,000 mg/L	(0.4 – 20) %	LC/UV LC/FLUOR LC/MS LC/MS/MS GC/FID GC/MS GC/ECD GC/NPD
Potable Water Routine Analytes Trace Elements Organic Pollutants Other Analytes	Alkalinity Dissolved Oxygen			
Industrial Waste Water Routine Analytes Trace Elements Organic Pollutants Other Analytes	<b>Organic Chemistry</b> Volatiles Organic Compounds (VOCs) Semi-Volatiles Organic Compounds (SVOCs) Per-and Polyfluoroalkyl Substances (PFAS) Polynuclear Aromatic Hydrocarbons (PAHs) Phenolics Organochlorine Pesticides (OCPs) Organonitrogen Pesticides (ONPs) Organophosphorus Pesticides (OPPs) Triazine Pesticides Carbamate/Carbamoxyloxime Pesticides Polychlorinated Biphenyls (PCBs) - Aroclors Chlorinated Acid Herbicides Herbicides Haloacetic Acids Glycols Nitroaromatics/Nitramines Petroleum Hydrocarbons (TPH/DRO/GRO/PVOC/VPH/EPH) Disinfection By-Products Dioxin	10 pg/L – 10,000 mg/L	(0.3 – 35) %	

<sup>1</sup> Uncertainties for the certified values are available on the reference material producer's issued certificates for reference materials and certified reference materials. The uncertainty ranges stated above represent typical relative expanded uncertainties, where k approximates a 95% confidence interval for given analytes within their respective product/category or sub-category. As some categories encompass many different products, concentration ranges, matrices, technologies and analyte/properties, please contact ERA/Waters for product/lot specific Certificates of Analysis to obtain actual estimates of uncertainty.

<sup>2</sup> This scope includes concentration ranges where applicable. Contact the reference material producer for certified values and other lot specific values.



## *Accredited Reference Material Producer*

A2LA has accredited

**ERA**

*Golden, CO*

This accreditation covers the specific materials listed on the agreed upon Scope of Accreditation.

This producer meets the requirements of ISO 17034:2016 *General Requirements for the Competence of Reference Material Producers*. This accreditation demonstrates technical competence for a defined scope and the operation of a quality management system.



Presented this 3<sup>rd</sup> day of December 2020.

A blue ink signature of the Vice President of Accreditation Services.

Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 1539.03  
Valid to September 30, 2022